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DDT FOR THE CONTROL OF THE JAPANESE BEETLE

DDT is one of the most effective insecticides for the protection of fruit and foliage from attack by the adult Japanese beetles and for the control of grubs of the Japanese beetle in the soil but there is much yet to be learned before it can be recommended generally. For the benefit of those who wish to try this new material, available information is summarized herewith.

Those who use preparations containing DDT should understand the nature of the material and exercise due caution in storing, handling, and applying it. DDT is a nerve poison. One should use the same care with preparations containing DDT as with such well-known insecticides as lead arsenate, calcium arsenate, paris green, and sodium fluoride. Special care should be taken when DDT is used with oil to avoid contact with the material.

DDT is highly toxic to fish and other cold-blooded animals as well as to many insects. If used indiscriminately, it may poison birds, poultry, and domestic animals. The treatments used against the Japanese beetle have killed many other insects, some of which are beneficial. There is much yet to be done to establish the effect of DDT on the beneficial parasites and predators that normally are important factors in keeping certain injurious pests under control. Spraying with DDT has usually caused a great increase in the numbers of mites on all plants subject to attack by these pests.

Control of Adult Beetles

Ornamental trees and shrubs may be protected from attack by the adult beetles by spraying them just as the beetles begin to attack them. The spray is prepared by mixing one pound of actual DDT in the form of a wettable powder (for example, 2 pounds of a 50 percent or 2.5 pounds of a 40 percent mixture) in 100 gallons of water. A second application, about two weeks later, may be necessary to protect the new growth. While such sprays have protected the foliage, they have not entirely prevented the beetles from damaging the flowers.

For the protection of early ripening apples, nectarines, peaches, plums, and grapes from attack by the beetles, the spray may be prepared in the same manner as for spraying ornamental trees and shrubs, using either the 40 or 50 percent material, and applied when the beetles begin to attack them. The DDT may be used alone or in combination with fungicides such as wettable sulfur, neutral coppers, and others. One application of the spray at this time has been sufficient to protect the fruit and foliage of apples, nectarines, peaches, and plums during

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the summer but usually a second application two or three weeks later has been required on grapes to protect new growth. When a second application to grapes is necessary, it is suggested that the amount of DDT be reduced to one-half of the amount used in the first spray.

Many types of plants have been sprayed with DDT. Of these plants only a few were injured in any way by the chemical. Spraying caused some injury to the foliage of red maples and spotted the blooms of petunias and roses; it definitely retarded the growth and yield of soybeans. In many cases, different species of red spiders or spider mites have increased to destructive numbers following the application of DDT. Generally safe, effective, and satisfactory measures for the control of mites are not yet available. The possibility of serious mite damage should be taken into consideration in planning a Japanese beetle control program.

Although DDT is less poisonous to man and to warm-blooded animals than to insects, it is by no means harmless. It is definitely poisonous to man and warm-blooded animals when considerable amounts are easten or taken up by the system. Care must therefore be exercised in using fruit sprayed with the material. Analyses indicate that when one application is made two weeks or more before harvest, the residue on the fruit should be well below the amount considered dangerous. However, when the fruit is picked less than two weeks after spraying, or when more than one application of DDT is made two or three weeks before harvest time, there may be an excessive amount of residue on the fruit. Such fruit could well be peeled before use.

Control of the Grubs

Japanese beetle grubs in lawns may be controlled by applying a 10 percent dust to the surface at the rate of 250 pounds per acre. Pyrophyllite and talc have been found satisfactory as diluents for the DDT. The dust should not contain an adhesive. Small areas may be treated by broadcasting the dust over the surface by hand, as uniformly as possible, but large areas can be treated more economically by using a fertilizer distributor. When spraying equipment is available, a wettable powder containing 25, 40, or 50 percent DDT may be suspended in 1,000 gallons of water and sprayed over an acre. One hundred pounds of the 25 percent, 62.5 pounds of the 40 percent, or 50 pounds of the 50 percent dust should be used in 1,000 gallons of water. When rains are frequent, the material adhering to the blades of grass is soon removed, but during dry weather it can be readily removed by sprinkling the lawn. The best results have been obtained when the treatment was applied in the spring. The present indications are that the treatment will be effective for at least two years.

For the control of the grubs in vegetable gardens and in flower beds, the DDT dust or spray should be applied in the same manner as in treating lawns. The material should then be mixed with the upper 3 to 4 inches of soil by cultivation.

Many different grasses, including redtop, creeping bent, perennial ryegrass, and Kentucky bluegrass, were found in the established lawns treated with DDT. None of them were injured.

Applying DDT to the soil of vegetable gardens may reduce the growth and yield of bush beans, lima beans, soybeans, onions, spinach, and tomatoes but may have no deleterious action on the other vegetables commonly grown. Strawberries may be retarded or killed by the treatment. Present indications are that there is little hazard in eating vegetables grown in soil treated with DDT.

Many different ornamental trees and shrubs have been grown successfully in soil treated with DDT, including azaleas, barberry, box, false-cypress, dogwood, cotoneaster, ginkgo, inkberry, holly, juniper, red cedar, laburnum, Oregon grape, spruce, pine, Douglas fir, firethorn, roses, yew, and arborvitae.